Claims

1. A monoclonal antibody or fragment thereof from an organism with autoimmune disease which recognizes a microbial antigen and neutralizes microbial infection.
2. A monoclonal antibody or fragment thereof that recognizes an antigen encoded by a HERV DNA sequence homologous to a microbial antigen and neutralizes microbial infection.
3. The antibody or fragment of claim 1, which neutralizes HIV-1.
4. The antibody or fragment of claim 2, which neutralizes HIV-1.
5. The antibody or fragment of claim 1, which is derived from a patient with an autoimmune disease.
6. The antibody or fragment of claim 5, wherein the autoimmune disease is systemic lupus erythematosus.
7. The antibody fragment of claim 1, comprising light chain (VL) and heavy chain (VH) variable domains.
8. The antibody fragment of claim 1, obtained by cloning cDNA for the antibody variable domains of the light chain (VL) and heavy chain (VH) from mRNA expressed by lymphoid cells.
9. The antibody fragment of claim 1, which is a single chain Fv construct containing VL and VH domains linked by a linker.
10. The antibody fragment of claim 9, wherein the linker is a peptide.
11. The antibody fragment of claim 9, wherein the order of components from N terminus to C terminus is VL-linker-VH.
12. The antibody fragment of claim 9, wherein the order of components from N terminus to C terminus is VH-linker-VL.
13. The antibody fragment of claim 1, which is a single chain Fv construct containing VL and VH domains linked by a peptide linker, obtained by varying the amino acid sequence of the linker to provide for enhanced HIV-neutralizing activity.
14. The antibody fragment of claim 13, wherein the linker is varied by mutagenesis.
15. The antibody fragment of claim 1, which is a light chain subunit.
16. The antibody fragment of claim 15, obtained by cloning cDNA for a light chain variable (VL) and a light chain constant (CL) region.
17. The antibody fragment of claim 3, obtained by expressing a library of Fv constructs on the surface of phage particles and isolating a subpopulation of HIV-reactive Fv particles that bind

to an antigen selected from the group consisting of intact HIV, trimeric gp120, monomeric full-length gp120 and peptide fragments of gp120.

18. The Fv construct of claim 17, which neutralizes at least three strains belonging to different HIV clades.
19. The Fv construct of claim 17, which neutralizes strains belonging to HIV-1 clades B, C and D.
20. A monoclonal IgG, IgA or IgM construct obtained by recloning an Fv construct of claim 17.
21. The light chain subunit of claim 15, which is obtained by expressing a library of light chain constructs on the surface of phage particles and isolating a subpopulation of HIV-reactive light chain particles that bind to an antigen selected from the group consisting of intact HIV, trimeric gp120, monomeric full-length gp120 and peptide fragments of gp120.
22. The light chain subunit of claim 21, which neutralizes at least two strains belonging to different HIV clades.
23. The light chain subunit of claim 21, which neutralizes strains belonging to HIV-1 clades C and D.
24. An Fv construct comprising a light chain VL domain of claim 15, and a VH domain from a different anti-gp120 antibody.
25. A monoclonal IgG, IgA or IgM construct obtained by recloning an Fv construct of claim 24.
26. The antibody or fragment of claim 2, which is derived from a patient with an autoimmune disease.
27. The antibody or fragment of claim 26, wherein the autoimmune disease is systemic lupus erythematosus.
28. The antibody fragment of claim 2, comprising light chain (VL) and heavy chain (VH) variable domains.
29. The antibody fragment of claim 2, obtained by cloning cDNA for the antibody variable domains of the light chain (VL) and heavy chain (VH) from mRNA expressed by lymphoid cells.
30. The antibody fragment of claim 2, which is a single chain Fv construct containing VL and VH domains linked by a linker.
31. The antibody fragment of claim 30, wherein the linker is a peptide.
32. The antibody fragment of claim 30, wherein the order of components from N terminus to C terminus is VL-linker-VH.

33. The antibody fragment of claim 30, wherein the order of components from N terminus to C terminus is VH-linker-VL.

34. The antibody fragment of claim 2, which is a single chain Fv construct containing VL and VH domains linked by a peptide linker, obtained by varying the amino acid sequence of the linker to provide for enhanced HIV-neutralizing activity.

35. The antibody fragment of claim 34, wherein the linker is varied by mutagenesis.

36. The antibody fragment of claim 4, obtained by expressing a library of Fv constructs on the surface of phage particles and isolating a subpopulation of HIV-reactive Fv particles that bind Gln-Ile-Lys-Asn-Phe-Leu-Lys-Glu-Val-Gly-Lys-Val-Val-Tyr-Ile, Lys-Gly-Gly-Lys-Ala-Thr-Tyr-Ser, or fragments thereof, which correspond to HERV sequence fragments within GenBank sequences AL592563.7 and AL391989.9, respectively.

37. A monoclonal IgG, IgA or IgM construct obtained by recloning an Fv construct of claim 36.

38. The antibody fragment of claim 2, which is a light chain subunit.

39. The antibody fragment of claim 38, obtained by cloning cDNA for a light chain variable (VL) and a light chain constant (CL) region.

40. The antibody fragment of claim 4, obtained by expressing a library of light chain constructs on the surface of phage particles and isolating a subpopulation of HIV-reactive Fv particles that bind Gln-Ile-Lys-Asn-Phe-Leu-Lys-Glu-Val-Gly-Lys-Val-Val-Tyr-Ile, Lys-Gly-Gly-Lys-Ala-Thr-Tyr-Ser, or fragments thereof, which are encoded by the following HERV sequence fragments within GenBank sequences AL592563.7 and AL391989.9, respectively.

41. An Fv construct comprising a light chain VL domain of claim 40, and a VH domain from a different anti-gp120 antibody.

42. A monoclonal IgG, IgA or IgM construct obtained by recloning an Fv construct of claim 41.

43. The antibody fragment of claim 2, which is a single chain Fv construct containing mutant VL and mutant VH domains linked by a peptide linker, obtained by varying the amino acid sequence of the VL and VH domains to provide for enhanced HIV-neutralizing activity.

44. The antibody fragment of claim 43, wherein the VL and VH domains are varied by mutagenesis.

45. The antibody fragment of claim 4, which is a single chain Fv construct containing mutant VL and mutant VH domains linked by a peptide linker, obtained by varying the amino acid sequence of the VL and VH domains to provide for enhanced HIV-neutralizing activity.

46. The antibody fragment of claim 45, wherein the VL and VH domains are varied by mutagenesis.

47. A monoclonal antibody of claim 1, obtained by screening cell lines derived from lymphoid cells from the organism for the ability to bind a microbial antigen.

48. The antibody of claim 47 in which the microbial antigen is selected from the group consisting of intact HIV, trimeric gp120, monomeric full-length gp120 and peptide fragments of gp120

49. A monoclonal antibody of claim 2, obtained by screening cell lines derived from lymphoid cells from the organism for the ability to bind a HERV encoded polypeptide antigen.

50. The monoclonal antibody of claim 49, in which the antigen is selected from the group consisting of Gln-Ile-Lys-Asn-Phe-Leu-Lys-Glu-Val-Gly-Lys-Val-Val-Tyr-Ile, Lys-Gly-Gly-Lys-Ala-Thr-Tyr-Ser and fragments thereof, which are encoded by the following HERV sequence fragments within GenBank sequences AL592563.7 and AL391989.9, respectively.